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STATISTICAL BULLETIN
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THE 1920 EPIDEMIC OF INFLUENZA

By the end of November, 1919, press despatches referred to the serious return of influenza and epidemic pneumonia in several countries, in Europe, Asia and South America. Reports of this kind continued to appear throughout the month of December. Early in January disquieting reports were received from Kansas and Oklahoma of the prevalence of an intestinal disorder resembling the gastro-intestinal type of influenza. By the fifteenth, reports from Chicago and other middle western points showed that this condition had become fairly extended throughout the central part of the United States. The City of New York soon began to show a marked increase in the number of cases. Likewise the various army camps reported an undue prevalence of influenza. At the end of January, the Federal Public Health Service announced that influenza had become epidemic in at least twenty states, but that the proportion of deaths to cases was very much lower than in the 1918 epidemic. There were by no means as many cases complicated by pneumonia; nor were the pneumonias as fatal as those which characterized the last visitation.

There is, already, very good evidence that the January epidemic was essentially different from that which prevailed in the last quarter of 1918 and in the early months of 1919. First, there is the comparatively mild character of the disease and the relatively few deaths caused. Thus, in the experience of the Industrial Department of the Metropolitan Life, which so well reflects current conditions in the United States and Canada, we find a death rate from influenza-pneumonia in January, 1920, of 142 per 100,000 lives as compared with 1,747 in October to December, 1918, and 125 for the seven year period, 1911 to 1917. The total influenza-pneumonia rate was, therefore, well within normal for

January. The second, and even more important point is the fact that the age distribution of the deaths from these diseases in January, did not at all conform to the very peculiar age distribution in the previous epidemic. In the last quarter of 1918, the age distribution of the deaths showed a high peak at early adult life, the maximum being at about age 30. The period of old age was only slightly affected. In the deaths of this January from influenza and pneumonia, the distribution repeated what we have always found in large numbers of pneumonia deaths, namely, high peaks in childhood and old age and low points in early adult life. The following table presents the facts for the comparative age distribution of the deaths for October to December, 1918, January, 1920, and the seven year period 1911 to 1917:

Age Period	Oct. to Dec., 1918	January, 1920	Seven Years 1911 to 1917
All ages—one and over	100.0	100.0	100.0
Under 15	22.5	25.3	24.3
15 to 24	21.2	8.6	5.7
25 to 34	33.0	10.3	8.2
35 to 44	11.7	9.9	10.7
45 to 64	9.0	27.8	30.1
65 and over	2.3	17.9	21.0

All the evidence considered together, justifies the conclusion that the outbreak of January, 1920, is in essential respects different from the last serious one and corresponds to what is normal at this time of the year when deaths from respiratory disease ordinarily increase in number. So far as the Metropolitan figures indicate, the mortality of February will be much higher. The facts will be reported in the March *Bulletin*.

UNUSUALLY LOW MORTALITY DURING JANUARY, 1920

Despite the widespread prevalence of influenza and pneumonia during the last fifteen days of January, the mortality record of the Metropolitan (Industrial Department) was unusually low considering the season of the year. The death rate was 10.18 per 1,000 lives. In December, 1919, the rate was 9.63 and in January, 1919, it was 18.1. A mortality figure as low as that for the past month is experienced ordinarily only in summer and early

autumn months. Two years ago, in January, 1918, hardly any attention was paid to a mortality rate three points per 1,000 higher than that recorded for the month just closed. The present epidemic did not make any real impression, during January, on the extraordinarily low general mortality which the country has enjoyed during the last half year.

There was an increase of 39 points per 100,000 lives in the combined death rate of influenza and pneumonia over that for December. There were also significant increases for measles, scarlet fever, whooping cough, tuberculosis, meningitis and the conditions incidental to pregnancy and childbirth. These increases are offset by reduced mortality from diphtheria, organic diseases of the heart, diarrhea and enteritis, Bright's disease, suicides, homicides and accidents. A short table is shown on the last page of this Bulletin which outlines the mortality rate from the several diseases and conditions during January, in comparison with similar figures for the month of December, 1919.

EPIDEMIC OF DIPHTHERIA DURING RECENT MONTHS

The country has recently passed through a severe visitation of diphtheria and is still suffering from it. It is difficult to understand how such a condition could arise at this time in view of the fact that the causative factors and the methods of control of diphtheria are better understood than for any other infectious disease. A death from diphtheria should be condemned just as severely as a death from typhoid fever; both are entirely unnecessary and represent what is, in effect, a sanitary crime. Yet, the last few months have seen a wide-spread and serious epidemic which would have attracted very much more attention were it not for the interest centered on influenza and pneumonia. In the experience of the Industrial Department of the Metropolitan, diphtheria alone caused the death of 1,276 children in the eighteen weeks ended January 31, 1920. In the month of December, 1919, the diphtheria rate was 37.0 and in January 32.3 per 100,000 lives, as compared with a rate of 20.5 for the whole year 1919.

Although the high prevalence of diphtheria was country-wide, some cities suffered more than others. We find St. Louis

at the head of a list of cities with a death rate of 67 per 100,000 of population for the thirteen weeks ended December 27. Chicago shows a rate of 38, the District of Columbia 35, all of which rates are well in excess of what these cities have had in recent times.

Although the peak of the epidemic has apparently passed, communities should not slacken their efforts against diphtheria. It would be well if health officers all over the country developed a vigorous campaign against diphtheria during the remainder of the winter and throughout the next spring. Ready means are within the reach of every well organized health department. For the recognition of susceptibles, there is the Shick test; and for those exposed to or sick with the disease there is the earlier and more extensive use of anti-toxin.

TUBERCULOSIS MORTALITY DURING 1919

The mortality experience of 1919 from tuberculosis among wage earners shows a very favorable decline from the rates for recent years. All forms of tuberculosis caused 18,846 deaths among Industrial policyholders at a rate of 150.5 per 100,000 exposed. This is 33 per cent. below the figure for 1911. Among white persons, the 1919 death rate (128.8 per 100,000) was 34 per cent. lower than the 1911 rate. A satisfactory decline was also recorded for colored persons, namely, 25 per cent. below the 1911 figure. Apparently, the influenza epidemic of 1918 neither developed many new cases of tuberculosis nor did it adversely affect the old ones, except temporarily during the height of the pandemic. The reduction in the 1919 rate was the most favorable on record.

Certain age groups were more profoundly affected by the reduction than others. Among white persons, in the age group where the rate for tuberculosis of the lungs was highest (ages 35 to 44), the maximum saving since 1911, 42 per cent., was accomplished. Among colored persons, the age group with next to the highest death rate (ages 25 to 34 years) showed the maximum percentage of reduction (27.4 per cent.). The figures for all forms of tuberculosis show that if the 1911 rates had prevailed during 1919, there would have been 27,762 deaths, instead of the 18,846 actually recorded. This achievement, we believe,

has resulted from the public health and educational work of communities generally during the past thirty years, and from the intensive health conservation work of this Company on behalf of its policyholders.

The following table presents the age statistics for mortality from tuberculosis of the lungs during 1919 in comparison with earlier years:

Death Rate per 100,000 for Tuberculosis of the Lungs, 1919, and Percentage Decline Since 1911 and 1918 By Color and By Age.

Age Period	White			Colored		
	1919 Rate	Per cent. Decline Since 1918	Per cent. Decline Since 1911	1919 Rate	Per cent. Decline Since 1918	Per cent. Decline Since 1911
All ages—one and over	116.1	20.6	34.3	284.2	20.3	24.6
Under 15	12.4	15.1	23.9	104.8	27.0	30.1
15 to 24	138.5	24.2	26.0	446.2	23.6	21.7
25 to 34	209.8	20.1	37.0	363.9	21.0	27.4
35 to 44	220.4	18.2	42.0	308.0	14.0	23.5
45 to 64	178.5	19.8	28.6	232.1	14.4	24.8
65 and over	130.7	22.8	30.3	210.3	20.0	9.2

THE EFFECT OF TUBERCULOSIS ON THE LENGTH OF LIFE

An inquiry recently carried out to determine the effect of tuberculosis in shortening the life-span of Industrial policyholders, has developed facts of importance bearing upon the foregoing mortality figures for the disease. We have found that the after-life-time of white males is reduced nearly three and one-half years, and of colored males approximately five years, because of tuberculosis. The present life expectancy of industrial white males, at birth, under prevailing rates of tuberculosis mortality, is 46.05 years, and of colored males 37.19 years. With tuberculosis eliminated, white males would enjoy an after life-time of 49.53 years and colored males a span of 42.14 years. In other words, the eradication of tuberculosis would add as much to the life span as has resulted from all the sanitary improvements of the last twenty-five years. This emphasizes what is at stake in the tuberculosis movement.

The grave economic loss from tuberculosis becomes apparent when we view the effect of this disease upon life expectancy at the early adult ages. At age 20, industrial white males suffer a loss of 3.67 years and colored males a loss of 4.40 years. Even at age 40, there would be added 1.66 years to the average after-life-span of white males and 1.65 years to that of colored males, if deaths from tuberculosis after that age no longer occurred. Since every added year at these productive ages has great economic value, it can be seen that large expenditures by communities for the study and prevention of tuberculosis are justifiable as a plain business proposition. But the social consequences of life extension, the savings from decreased sickness and disability, the lessened disruption and impairment of family life, will be even more significant. What will the next two decades of tuberculosis work show?

The table given below shows the complete expectation of life of white and colored males, with and without tuberculosis present:

Average After-Life-Time of White and Colored Males and Number of Years Lost Because of Tuberculosis.

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916.

Age	White Males			Colored Males		
	Tuberculosis Present	Tuberculosis Not Present	Years Lost	Tuberculosis Present	Tuberculosis Not Present	Years Lost
0	46.05	49.53	3.48	37.19	42.14	4.95
5	50.23	54.07	3.84	45.04	50.59	5.55
10	46.09	49.95	3.86	41.17	46.54	5.37
15	41.61	45.45	3.84	37.10	42.19	5.09
20	37.39	41.06	3.67	33.81	38.21	4.40
30	29.78	32.58	2.80	27.78	30.63	2.85
40	23.23	24.89	1.66	21.95	23.60	1.65
50	17.24	18.02	0.78	16.33	17.17	0.84
60	11.73	12.04	0.31	11.42	11.79	0.37
70	7.28	7.38	0.10	7.74	7.89	0.15

DEATHS AMONG STREET RAILWAY EMPLOYEES

Employees of a large street railway corporation in an eastern city, showed low death rates during the year 1919. Out of 9,000, who were under investigation for the year, only three accidental

deaths occurred and only one of these was occupational in character. These facts are made available by a study of the experience of a large group of workers insured under a Metropolitan Group policy. During four months of the influenza epidemic from September to December, 1918, a total of 83 deaths occurred. Only 96 deaths were reported during the whole year of 1919. During the influenza period of 1918, 73 per cent. of the deaths resulted from the epidemic; but during the year 1919 only a little over 10 per cent. were caused by influenza and pneumonia.

More than one-quarter of all the deaths were due to tuberculosis of the lungs. The death rate from tuberculosis is evidently high among these street railway employees. Eleven deaths were due to heart disease, 10 to Bright's disease, and 10 to cerebral hemorrhage and apoplexy. Deaths from respiratory diseases and from accidents, which were expected to be many, were exceptionally few. The following table presents the death rates per 1,000 for this group by age period:

Deaths per 1,000 Exposed at Each Age Group Among Employees of a Street Railway Corporation, September, 1918, to December, 1919.

Age Period	September to December, 1918		Year 1919—
	All Causes of Death	Influenza and Pneumonia	All Causes of Death
All ages	33.4	24.5	10.9
Under 25	19.5	19.5	2.2
25 to 34	38.0	32.2	5.8
35 to 44	33.5	29.7	6.6
45 to 64	29.1	13.1	16.0
65 and over	72.3	24.1	78.0

The death rates for each age under 65, are very good indeed and compare favorably with those for occupations where there is no hazard involved.

METROPOLITAN LIFE INSURANCE COMPANY

Death Rates per 100,000 from Principal Causes. Premium Paying Business in Industrial Department.

MONTHS OF JANUARY, 1920 AND DECEMBER, 1919.

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED		
	January, 1920	December, 1919	Year 1919
Total—all causes	1018.1	962.7	1041.4
Typhoid fever	7.6	7.7	7.1
Measles	6.4	3.5	3.5
Scarlet fever	6.8	5.4	3.8
Whooping cough	5.3	2.7	3.1
Diphtheria	32.3	37.0	20.5
Influenza	17.5	12.8	94.1
Tuberculosis (all forms)	141.5	135.0	150.5
Meningitis (all forms)	8.0	5.0	6.6
Cerebral hemorrhage	70.1	64.7	57.9
Organic diseases of heart	124.1	128.0	111.7
Pneumonia (all forms)	124.3	90.3	117.5
Other respiratory diseases	24.1	19.6	17.2
Diarrhea and enteritis	8.0	11.3	16.6
Bright's disease	75.9	79.3	72.2
Puerperal state	19.6	16.6	19.2
Suicides	4.9	5.1	6.6
Homicides	4.3	6.3	6.7
Other external causes (excluding suicides and homicides)	58.6	61.1	78.0
All other causes	278.7	271.2	248.8